

Notice of Allowability

Application No.

09/884,207

Examiner

Daniel Swerdlow

Applicant(s)

OINOUE ET AL.

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment and RCE filed 21 February 2006.
2. ☒ The allowed claim(s) is/are 1,3,5 and 6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:
2. Regarding Claim 1, US Patent 5,850,453 to Klayman et al. discloses an acoustic correction apparatus that achieves a frontal stereo image with respect to a listener inside a vehicle (column 6, lines 14-17) with door mounted speakers (Figs. 1-2, reference 46; column 5, lines 55-58). As such, Klayman discloses creating virtual sound source positions above and forward of the actual loudspeaker positions. Further, the mathematical conditions of Claim 1 (i.e., $SLO = (L \times ARR(z) - R \times ARL(z)) / ALL(z) \times ARR(z) - ALR(z) \times ARL(z)$), etc.) are simply statements that the sound at the listener's ears due to the transformed output (e.g., SLO) from the real loudspeakers matches the sound that would be experienced by the listener if the input signal (e.g., SL) were applied to loudspeakers at the virtual loudspeaker locations. As such, any system that creates a virtual loudspeaker effect, including the one disclosed in Klayman, meets these limitations. However, the signal processing structure that achieves this correction in Klayman (Fig. 5) does not meet the structural limitations of the claim.
3. US Patent 4,980,914 to Kunugi et al. discloses a sound field correction system that uses a structure like that claimed (Fig. 12) including a level adjuster (3-2) that corresponds to the attenuator claimed, a low pass filter (3-13), an inverter and summer arrangement (3-3, 3-4) that corresponds to the differential amplifier claimed, and a loudspeaker (column 9, lines 41-42) that corresponds to the speaker means claimed. However, the system disclosed in Kunugi is directed to mitigating irregularities in frequency characteristics (column 2, lines 42-45), not creating a virtual loudspeaker image, as claimed. Similarly, US Patent 4,622,691 to Tokumo et al. discloses a mobile sound field correcting device (Fig. 6) that includes a level adjusting circuit

(20) that corresponds to the attenuator claimed, a band pass filter (18), an inverter and summer arrangement (21, 22) that corresponds to the differential amplifier claimed, and a loudspeaker (column 7, lines 6-9) that corresponds to the speaker means claimed. However, Tokumo is also directed to improving frequency characteristics, not creating a virtual loudspeaker image, as claimed. As such, Klayman fails to meet the structural limitations of the claim while Kunugi and Tokumo fail to meet the functional limitations. Further, there is no teaching or suggestion in the references or the knowledge of one of ordinary skill in the art to combine the references' respective teachings to achieve the claimed invention. Therefore, Claim 1 is allowable.

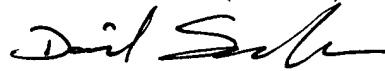
4. Claims 3, 5 and 6 are allowable due to dependence from Claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Swerdlow
Primary Examiner
Art Unit 2615

ds
9 May 2006